

REMARKS**INTRODUCTION:**

In accordance with the foregoing, claims 9, 23 and 25 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1, 4-7, 9, 19-23 and 25 are pending and under consideration. Reconsideration is respectfully requested.

REJECTION UNDER 35 U.S.C. §112:

A. In the Office Action, at pages 2-3, numbered paragraph 4, claim 25 was rejected under 35 U.S.C. §112, first paragraph, for the reasons set forth therein. This rejection is traversed and reconsideration is requested.

In paragraph [0022], the present invention is described as follows:

[0022] In particular, the body is a filter for air cleaners. (emphasis added)

Hence, it is respectfully submitted that the terminology "filter body" is clear - it is a body that is a filter.

However, for clarity, claim 25 has been amended to change "filter body" to ---filter---.

On page 6 of the specification, paragraph [0028] of the specification recites:

[0028] FIG. 1 is a flow chart illustrating a process of providing antibacterial activity to a surface of a body using nano-sized metal particles according to the present invention. As shown in FIG. 1, the method of the present invention includes dispersing nano-sized metal particles into a solution in operation 100, coating the solution dispersed with the nano-sized metal particles onto the body in operation 110, drying the coated body in operation 120, and thermally treating the coated or dried body in operation 130. (emphasis added)

On page 8 of the specification, Table I recites:

TABLE 1

Test Strain	Amount (ppm)	Coated Body	Halo (mm)	
			Ag	Ag + S
<i>Escherichia coli</i> ATCC 25922	100	Copper	1.0	0.0
		Stainless	0.0	0.0
	500	Copper	1.0	1.0
		Stainless	1.5	0.5
<i>Staphylococcus aureus</i> ATCC 6538	100	Copper	1.5	1.5
		Stainless	0.0	0.0
	500	Copper	3.5	1.0
		Stainless	1.0	0.5

There appears to be a misunderstanding of the terminology "copper/stainless." Apparently, the Examiner has interpreted "copper/stainless" as meaning a combination of copper and stainless steel. This is incorrect. The terminology "copper/stainless" means either copper or stainless steel. Hence, Applicants respectfully submit that, in contrast to the Examiner's comment "There is no support that Applicant's air filters are or can be made of copper/stainless," it is clear that the coated bodies of Table I may be made of copper or stainless steel.

The Examiner has acknowledged that "Table I provides some exemplary teachings of reactions on generic stainless steel or copper 'bodies'" (emphasis added). For clarity, claim 25 has been amended to recite:

A method of providing antibacterial activity to a surface of a ~~copper/stainless~~copper or stainless steel filter body using nano-sized metal particles, comprising:

coating, onto the surface of the ~~copper/stainless~~copper or stainless steel filter body, a volatile solution dispersed with nano-sized metal particles selected from the group consisting of silver (Ag), aluminum (Al), copper (Cu), iron (Fe), zinc (Zn), cadmium (Cd), palladium (Pd), rhodium (Rh) and chrome (Cr); and

heating the filter at 50-150°C to obtain a deposit of nano-sized metal particles on the ~~copper/stainless~~copper or stainless steel filter body.

Hence, it is respectfully submitted that claim 25 is now in form for allowance under 35 U.S.C. §112, first paragraph.

B. In the Office Action, at page 3, numbered paragraph 6, claim 25 was rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth therein. This rejection is traversed and reconsideration is requested.

The Examiner submitted that, in claim 25, the terminology "copper/stainless" was confusing. The terminology "copper/stainless" has been amended to recite ---copper or stainless steel--- for clarity.

Thus, it is respectfully submitted that amended claim 25 is now in form for allowance under 35 U.S.C. §112, second paragraph.

REJECTION UNDER 35 U.S.C. §103:

In the Office Action, at page 4-5, numbered paragraph 9, claims 1, 4-7, and 19-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kropf et al. (2005/0234416A1; hereafter, Kropf). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

It should be noted that Kropf teaches nano-sized materials in hygiene products such as diapers, tampons, pantyliners, and the like (see Abstract and claim 1, Kopf), wherein at least one body-compatible substance is present in the form of nanoparticles which have surfaces which have been chemically or physically modified or both chemically and physically modified. Hence, Kopf does not teach a filter body, but rather teaches a woven or nonwoven surface coated with modified nanoparticles, wherein a portion of the woven or nonwoven surface is in contact with the skin to provide a moisture- and odor-absorption action:

P. 2, paragraph [0015]:

[0015] Accordingly, the present invention relates to hygiene products or parts thereof (which are in contact with the skin, in particular nonwoven materials) which contain nano-sized particles (nanoparticles) and which, due to these particles, on the one hand have a moisture- and odor-absorbing action, and on the other hand have a pH-neutralizing, antibacterial (antiseptic) and/or anti-inflammatory action. (emphasis added)

P. 5, paragraph [0055]:

[0055] The nanoparticles can be suspended either in anhydrous or in aqueous systems. Both the anhydrous and also the aqueous systems can on the one hand be composed of hydrophobic components, but on the other hand also of hydrophilic components in order to give the hygiene products a hydrophilic or hydrophobic behavior necessary for the various areas of application. If the nonwoven is to absorb liquid, it is provided with a hydrophilic finish; if, by contrast, it is to repel liquid, it must be hydrophobic. Thus, the middle section of a top sheet (uppermost nonwoven of a diaper) is hydrophilic in order to be able to absorb the liquid and to convey it to the lower layers. The outer part of the top

sheet, by contrast, is hydrophobic in order to prevent leakage. For both areas, however, an antibacterial and anti-inflammatory finish is desired. (emphasis added)

It is respectfully submitted that Kropf's use of nano-sized materials in hygiene products, wherein the nano-sized particles are located on the surfaces of layers of woven and non-woven materials to absorb the liquid in middle layers and convey it to the lower layers and to repel liquid and wherein the hygiene products or parts thereof are in contact with the skin, does not teach or suggest a method of providing antibacterial activity to a surface of a filter body or a home appliance body using nano-sized metal particles, comprising: coating a volatile solution dispersed with nano-sized metal particles onto the surface of the filter body or home appliance body; drying the coated filter body or home appliance body; and thermally treating the coated filter body or home appliance body wherein the nano-sized metal particles are deposited onto the filter body or home appliance body, wherein the thermal treatment operation is performed at 50-150°C to prevent deformation of the filter body or home appliance body, wherein the metal particles are selected from the group consisting of silver (Ag), aluminum (Al), copper (Cu), iron (Fe), zinc (Zn), cadmium (Cd), palladium (Pd), rhodium (Rh) and chrome (Cr), as is recited in claim 1 of the present invention.

Similarly, Kropf's use of nano-sized materials in hygiene products, wherein the nano-sized particles are located on the surfaces of layers of woven and non-woven materials to absorb the liquid in middle layers and convey it to the lower layers and to repel liquid and wherein the hygiene products or parts thereof are in contact with the skin, does not teach or suggest a method of providing antibacterial activity to a surface of a copper or stainless steel body using nano-sized metal particles, comprising: coating, onto the surface of the copper or stainless steel filter, a volatile solution dispersed with nano-sized metal particles selected from the group consisting of silver (Ag), aluminum (Al), copper (Cu), iron (Fe), zinc (Zn), cadmium (Cd), palladium (Pd), rhodium (Rh) and chrome (Cr); and heating the filter at 50-150°C to obtain a deposit of nano-sized metal particles on the copper or stainless steel filter, as is recited in amended claim 25 of the present invention.

For example, the present claimed invention does not recite a hygiene product in contact with the skin and does not recite absorbing moisture through various woven and nonwoven layers. In contrast, the present claimed invention recites coating a filter body, home appliance or filter with a volatile solution dispersed with nano-sized particles onto the surface of the filter body, home appliance or filter, drying same and thermally treating same. A filter, filter body or home appliance is not a "hygiene product." A "hygiene product" is defined on page 1, paragraph [0011] of Kropf, as a product such as a diaper for babies, a pantyliner or a tampon. It is respectfully submitted that diapers, pantyliners or tampons do not suggest filters or home appliances.

Hence, Kropf teaches away from the present invention.

Thus, it is respectfully submitted that independent claims 1 and 25 of the present invention are patentable under 35 U.S.C. §103(a) over Kropf et al. (2005/0234416A1). Since claims 4-7 and 19-22 depend from claim 1, claims 4-7 and 19-22 are patentable under 35 U.S.C. §103(a) over Kropf et al. (2005/0234416A1) for at least the reasons that claim 1 is patentable under 35 U.S.C. §103(a) over Kropf et al. (2005/0234416A1).

EXAMINER INTERVIEW:

On July 10, 2006, Examiner Michener and Applicants' attorney Darleen J. Stockley discussed claims 9 and 23. Examiner Michener said that, since she had not rejected claims 9 and 23, Applicants should note in the response that claims 9 and 23 appear to be objected to because they are dependent on rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 9 has been amended to include the features of claims 1, 5 and 7. Claim 23 has been amended to include the features of claims 1 and 22. Hence, it is respectfully submitted that amended claims 9 and 23 are in allowable form.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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